

\$%^Dialog:HighlightOn=%%%;HighlightOff=%%%;

*** DIALOG HOMEBASE(SM) Main Menu ***

Connecting via Winsock to Dialog

Logging in to Dialog

Trying 31060000009998...Open

DIALOG INFORMATION SERVICES

PLEASE LOGON:

ENTER PASSWORD:

Welcome to DIALOG

Dialog level 05.05.00D

Last logoff: 18jul05 11:46:00

Logon file405 22jul05 09:59:58

*** ANNOUNCEMENT ***

--UPDATED: Important Notice to Freelance Authors--

See HELP FREELANCE for more information

NEW FILES RELEASED

***Aluminium Industry Abstracts (File 33)

***Ceramic Abstracts/World Ceramic Abstracts (File 335)

***CSA Life Sciences Abstracts (File 24)

***Corrosion Abstracts (File 46)

***Materials Business File (File 269)

***Engineered Materials Abstracts (File 293)

***CSA Aerospace & High Technology Database (File 108)

***CSA Technology Research Database (File 23)

***METADEX(r) (File 32)

***FbAnews (File 182)

***German Patents Fulltext (File 324)

RESUMED UPDATING

***Canadian Business and Current Affairs (262)

***CorpTech (559)

Chemical Structure Searching now available in Prous
Science Drugs

of the Future (F453), IMS R&D Focus (F445), Beilstein
Facts (F390),

and Derwent Chemistry Resource (F355).

>>> Enter BEGIN HOMEBASE for Dialog Announcements

<<<

>>> of new databases, price changes, etc. <<<

HILIGHT set on as '*'

KWIC is set to 50.

SYSTEM:HOME

Cost is in DialUnits

Menu System II: D2 version 1.7.9 term=ASCII

Information:

1. Announcements (new files, reloads, etc.)
2. Database, Rates, & Command Descriptions
3. Help in Choosing Databases for Your Topic
4. Customer Services (telephone assistance, training, seminars, etc.)
5. Product Descriptions

Connections:

6. DIALOG(R) Document Delivery
7. Data Star(R)

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/H = Help /L = Logoff /NOMENU =
Command Mode

Enter an option number to view information or to connect
to an online
service. Enter a BEGIN command plus a file number to
search a database
(e.g., B1 for ERIC).
? b 410

22jul05 09:59:58 User217743 Session D659.1

\$0.00 0.218 DialUnits FileHomeBase

\$0.00 Estimated cost FileHomeBase

\$0.00 Estimated cost this search

\$0.00 Estimated total session cost 0.218 DialUnits

File 410:Chronolog(R) 1981-2005/Jun

(c) 2005 The Dialog Corporation

Set Items Description

--- -----

? set hi %%;set hi %%

HILIGHT set on as '%%%'

%%%HILIGHT set on as '%%%'

? b 155

22jul05 10:00:01 User217743 Session D659.2

\$0.00 0.100 DialUnits File410

\$0.00 Estimated cost File410

\$0.00 Estimated cost this search

\$0.00 Estimated total session cost 0.318 DialUnits

File 155:MEDLINE(R) 1951-2005/Jul W3

(c) format only 2005 The Dialog Corp.

Set Items Description

--- -----

? s (glycoprotein())hormone or gonadotrop?)in

76061 GLYCOPROTEIN

263731 HORMONE

925 GLYCOPROTEIN(W)HORMONE

8390 GONADOTROP?IN
 S1 9284 (GLYCOPROTEIN()HORMONE OR
 GONADOTROP?IN)
 ? s (glycoprotein()hormone or gonadotrop?in())alpha
 76061 GLYCOPROTEIN
 263731 HORMONE
 925 GLYCOPROTEIN(W)HORMONE
 8390 GONADOTROP?IN
 527473 ALPHA
 S2 298 (GLYCOPROTEIN()HORMONE OR
 GONADOTROP?IN)()ALPHA
 ? s (glycoprotein()hormone or gonadotrop?in())alpha/ti
 22285 GLYCOPROTEIN/TI
 93637 HORMONE/TI
 248 GLYCOPROTEIN/TI(W)HORMONE/TI
 3576 GONADOTROP?IN/TI
 141277 ALPHA/TI
 S3 163 (GLYCOPROTEIN()HORMONE OR
 GONADOTROP?IN)()ALPHA/TI
 ? t s3/3/1-10

3/3/1
 DIALOG(R)File 155:MEDLINE(R)
 (c) format only 2005 The Dialog Corp. All rts. reserv.

18140830 PMID: 15890769
 Heterodimeric Fly %%%Glycoprotein%%
 %%%Hormone%%-%{%%alpha%%}2 (GPA2)
 and Glycoprotein Hormone-[beta]5 (GPB5) Activate
 Fly Leucine-Rich
 Repeat-Containing G Protein-Coupled Receptor-1 (DLGR1)
 and Stimulation of
 Human Thyrotropin Receptors by Chimeric Fly GPA2 and
 Human GPB5.
 Sudo Satoko; Kuwabara Yoshimitsu; Park Jae-II; Hsu
 Sheau Yu; Hsueh Aaron
 J W
 Stanford University School of Medicine, Department
 of Obstetrics and
 Gynecology, 300 Pasteur Drive, Room A344, Stanford,
 California 94305-5317.
 aaron.hsueh@stanford.edu.
 Endocrinology (United States) Aug 2005, 146 (8)
 p3596-604, ISSN
 0013-7227 Journal Code: 0375040
 Publishing Model Print-Electronic
 Document type: Journal Article
 Languages: ENGLISH
 Main Citation Owner: NLM
 Record type: In Data Review

3/3/2
 DIALOG(R)File 155:MEDLINE(R)
 (c) format only 2005 The Dialog Corp. All rts. reserv.

18072582 PMID: 15750303

Transcriptional activity of the 5' upstream region of
 the porcine
 %%%glycoprotein%% %%%hormone%% %%%alpha%%
 subunit gene.

Aikawa Satoko; Susa Takao; Sato Takanobu; Kitahara
 Kousuke; Kato Takako;

Kato Yukio

Laboratory of Molecular Biology and Gene Regulation,
 Department of Life
 Science, School of Agriculture, Meiji University,
 Kawasaki, Kanagawa,
 Japan.

Journal of reproduction and development (Japan) Feb
 2005, 51 (1)

p117-21, ISSN 0916-8818 Journal Code: 9438792

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

3/3/3
 DIALOG(R)File 155:MEDLINE(R)
 (c) format only 2005 The Dialog Corp. All rts. reserv.

17975218 PMID: 15667455
 Gonadotrophin inhibitory hormone depresses
 %%%gonadotrophin%%
 %%%alpha%% and follicle-stimulating hormone beta
 subunit expression in the
 pituitary of the domestic chicken.

Ciccone N A; Dunn I C; Boswell T; Tsutsui K; Ubuka T;
 Ukena K; Sharp P J

Division of Genetics and Genomics, Roslin Institute,
 Midlothian, UK.

nick.ciccone@bbsrc.ac.uk

Journal of neuroendocrinology (England) Dec 2004, 16
 (12) p999-1006,

ISSN 0953-8194 Journal Code: 8913461

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

3/3/4
 DIALOG(R)File 155:MEDLINE(R)
 (c) format only 2005 The Dialog Corp. All rts. reserv.

17241810 PMID: 15505992
 Differential regulation of gonadotropins and
 %%%glycoprotein%%
 %%%hormone%% %%%alpha%%-subunit by IGF-I in
 anterior pituitary cells from
 male rats.

Pazos F; Sanchez-Franco F; Balsa J; Escalada J; Cacicedo L
Servicio de Endocrinología, Hospital Ramon y Cajal,
Madrid, Spain.
Journal of endocrinological investigation (Italy) Jul-
Aug 2004, 27
(7) p670-5, ISSN 0391-4097 -Journal Code: 7806594
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3/5
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

15212309 PMID: 14980799
Hypophyseal gene expression profiles of FSH-beta,
LH-beta, and
%%glycoprotein%% %%hormone%%-
%%alpha%% subunits in Ictalurus
punctatus throughout a reproductive cycle.
Kumar R Sampath; Trant John M
Center of Marine Biotechnology, University of
Maryland Biotechnology
Institute, Baltimore, MD 21202, USA.
General and comparative endocrinology (United States)
Mar 2004, 136
(1) p82-9, ISSN 0016-6480 Journal Code: 0370735
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3/6
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

15046564 PMID: 14596681
Steroidogenic factor-1 enhances basal and
forskolin-stimulated
transcription of the human %%glycoprotein%%
%%hormone%% %%alpha%%
-subunit gene in GH3 cells.
Fowkes Robert C; Burrin Jacky M
Department of Endocrinology, Barts and the Royal
London School of
Medicine and Dentistry, West Smithfield, London
EC1A 7BE, UK.
rfow0187@itsa.ucsf.edu
Journal of endocrinology (England) Nov 2003, 179 (2)
pR1-6, ISSN
0022-0795 Journal Code: 0375363
Publishing Model Print

Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3/7
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

15042223 PMID: 12920232
Steroidogenic factor-1 and the gonadotrope-specific
element enhance basal
and pituitary adenylate cyclase-activating
polypeptide-stimulated
transcription of the human %%glycoprotein%%
%%hormone%% %%alpha%%
-subunit gene in gonadotropes.
Fowkes Robert C; Desclozeaux Marion; Patel Mayur V;
Aylwin Simon J B;
King Peter; Ingraham Holly A; Burrin Jacky M
Department of Endocrinology, Barts and Royal London
School of Medicine
and Dentistry, West Smithfield, London, United
Kingdom.
rfow0187@itsa.ucsf.edu.
Molecular endocrinology (Baltimore, Md.) (United States)
Nov 2003, 17
(11) p2177-88, ISSN 0888-8809 Journal Code: 8801431
Publishing Model Print-Electronic
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3/8
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

14763637 PMID: 12719648
Cloning of the genes for the pituitary
%%glycoprotein%% %%hormone%%
%%alpha%% and follicle-stimulating hormone beta
subunits in the Japanese
crested ibis, Nipponia nippon.
Kawasaki Daisuke; Aotsuka Tadashi; Higashinakagawa
Toru; Ishii Susumu
Department of Biology, School of Education, Waseda
University, Tokyo,
Japan. kawasakid@ruri.waseda.jp
Zoological science (Japan) Apr 2003, 20 (4) p449-59,
ISSN 0289-0003
Journal Code: 8702287
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM

Record type: MEDLINE; Completed

3/3/9

DIALOG(R)File 155:MEDLINE(R)

(c) format only 2005 The Dialog Corp. All rts. reserv.

14633155 PMID: 12538624

Extracellular signal-regulated kinase and c-Src, but not Jun N-terminal

kinase, are involved in basal and gonadotropin-releasing hormone-stimulated

activity of the %%%glycoprotein%%%

%%hormone%% %%%alpha%% -subunit promoter.

Harris Dagan; Chuderland Dana; Bonfil David; Kraus Sarah; Seger Rony;
Naor Zvi

Department of Biochemistry, The George S. Wise
Faculty of Life Sciences,

Tel Aviv University, Ramat Aviv 69978, Israel.

Endocrinology (United States) Feb 2003, 144 (2)
p612-22, ISSN

0013-7227 Journal Code: 0375040

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

3/3/10

DIALOG(R)File 155:MEDLINE(R)

(c) format only 2005 The Dialog Corp. All rts. reserv.

14613841 PMID: 12488367

Stimulation of combinatorial expression of prolactin and

%%glycoprotein%% %%%hormone%%

%%alpha%% -subunit genes by

gonadotropin-releasing hormone and estradiol-17beta in
single rat pituitary

cells during aggregate cell culture.

Hauspie A; Seuntjens E; Vankelecom H; Denef C

Laboratory of Cell Pharmacology, University of Leuven
(K.U. Leuven),

Medical School, Campus Gasthuisberg (O&N), B-3000
Leuven, Belgium.

Endocrinology (United States) Jan 2003, 144 (1)
p388-99, ISSN

0013-7227 Journal Code: 0375040

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

? set hi %%%set hi %%%ds

HIGHLIGHT set on as '%%%'

%%HIGHLIGHT set on as '%%DS'

? ds

Set Items Description

S1 9284 (GLYCOPROTEIN())HORMONE OR
GONADOTROP?IN)

S2 298 (GLYCOPROTEIN())HORMONE OR
GONADOTROP?IN())ALPHA

S3 163 (GLYCOPROTEIN())HORMONE OR
GONADOTROP?IN())ALPHA/TI

? t s3/ti/11-163

? set hi *

HIGHLIGHT set on as '*'

?

Set Items Description

S1 9284 (GLYCOPROTEIN())HORMONE OR
GONADOTROP?IN)

S2 298 (GLYCOPROTEIN())HORMONE OR
GONADOTROP?IN())ALPHA

S3 163 (GLYCOPROTEIN())HORMONE OR
GONADOTROP?IN())ALPHA/TI

? t s3/3,an/14,22,55,66,72,92,96,99,108,109,162

3/3,AN/14

DIALOG(R)File 155:MEDLINE(R)

(c) format only 2005 The Dialog Corp. All rts. reserv.

14299421 PMID: 12112597

Comparison of *glycoprotein* *hormone* *alpha*-
subunits of laboratory
animals.

Suzuki Osamu; Mochida Keiji; Yamamoto Yoshie; Noguchi
Yoko; Takano Kaoru;

Matsuda Junichiro; Ogura Astuo

Department of Veterinary Science, National Institute
of Infectious

Diseases, Toyama 1-23-1, Shinjuku-ku, Tokyo, Japan.

osuzuki@nih.go.jp

Molecular reproduction and development (United
States) Jul 2002, 62

(3) p335-42, ISSN 1040-452X Journal Code: 8903333

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

3/3,AN/22

DIALOG(R)File 155:MEDLINE(R)

(c) format only 2005 The Dialog Corp. All rts. reserv.

13565212 PMID: 11148053

Intracellular folding pathway of the cystine knot-
containing

glycoprotein *hormone* *alpha*-subunit.

Darling R J; Wilken J A; Ruddon R W; Bedows E
Department of Pharmacology, Eppley Institute for
Research in Cancer and
Allied Diseases, University of Nebraska Medical Center,
Omaha, Nebraska
68198, USA.

Biochemistry (UNITED STATES) Jan 16 2001, 40
(2) p577-85, ISSN
0006-2960 Journal Code: 0370623
Contract/Grant No.: CA32949; CA; NCI; P30 CA36727;
CA; NCI
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3,AN/55
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

11265738 PMID: 8589549
A synthetic peptide corresponding to *glycoprotein*
hormone *alpha*
subunit residues 32-46 inhibits gonadotropin binding to
receptor.
Leng N; Grasso P; Deziel M R; Reichert L E
Albany Medical College, NY, USA.
Peptide research (UNITED STATES) Sep-Oct 1995, 8
(5) p272-7, ISSN
1040-5704 Journal Code: 8913494
Contract/Grant No.: HD-13938; HD; NICHD
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3,AN/66
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

10645902 PMID: 7518386
Evidence for two folding domains in *glycoprotein*
hormone *alpha*
-subunits.
Bousfield G R; Ward D N
Department of Biological Sciences, Wichita State
University, Kansas
67260.
Endocrinology (UNITED STATES) Aug 1994, 135
(2) p624-35, ISSN
0013-7227 Journal Code: 0375040
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH

Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3,AN/72
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

10544536 PMID: 7511092
A region in the human *glycoprotein* *hormone* *alpha*
subunit important
in holoprotein formation and receptor binding.
Xia H; Chen F; Puett D
Department of Biochemistry, University of Georgia,
Athens 30602.
Endocrinology (UNITED STATES) Apr 1994, 134 (4)
p1768-70, ISSN
0013-7227 Journal Code: 0375040
Contract/Grant No.: DK-33973; DK; NIDDK
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3,AN/92
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

09705517 PMID: 1372275
Assembly and expression of a synthetic gene
encoding the bovine
glycoprotein *hormone* *alpha*-subunit.
Campbell R K; Erfle H; Barnett R W; Moyle W R
University of Medicine and Dentistry of New Jersey,
Robert Wood Johnson
(Rutgers) Medical School, Piscataway 08854.
Molecular and cellular endocrinology (NETHERLANDS)
Feb 1992, 83 (2-3)
p195-200, ISSN 0303-7207 Journal Code: 7500844
Contract/Grant No.: HD14709; HD; NICHD
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3,AN/96
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

09471495 PMID: 1713773
Molecular cloning of the rhesus *glycoprotein*
hormone *alpha*-subunit
gene.
Golas T G; Durning M; Fisher J M

Wisconsin Regional Primate Research Center,
University of Wisconsin,
Madison 53715-1299.
DNA and cell biology (UNITED STATES) Jun 1991, 10
(5) p367-80,
ISSN 1044-5498 Journal Code: 9004522
Contract/Grant No.: R29-HD-24856; HD; NICHD;
RR00167; RR; NCRR
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3,AN/99
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

09404044 PMID: 2036968
The antigenic structure of the human *glycoprotein*
hormone *alpha*
-subunit: III. Solution- and solid-phase mapping using
synthetic peptides.
Charlesworth M C; Bergert E R; Morris J C; McCormick D
J; Ryan R J
Department of Biochemistry, Mayo Medical School,
Rochester, Minnesota
55905.
Endocrinology (UNITED STATES) Jun 1991, 128 (6)
p2907-15, ISSN
0013-7227 Journal Code: 0375040
Contract/Grant No.: HD-9140; HD; NICHD
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3,AN/108
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

09180713 PMID: 1701134
The antigenic structure of the human *glycoprotein*
hormone *alpha*
-subunit: II. Cross-species comparisons.
Bergert E R; Madden B; McCormick D J; Papkoff H; Ryan
R J
Department of Biochemistry and Molecular Biology,
Mayo Medical School,
Rochester, Minnesota 55905.
Endocrinology (UNITED STATES) Dec 1990, 127
(6) p2985-9, ISSN
0013-7227 Journal Code: 0375040
Contract/Grant No.: HD-05722; HD; NICHD; HD-9140;
HD; NICHD

Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3,AN/109
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

09180712 PMID: 1701133
The antigenic structure of the human *glycoprotein*
hormone *alpha*
-subunit. I. Characterization of anti-alpha monoclonal
antibodies.
Charlesworth M C; McCormick D J; Bergert E R;
Vutyavanich T; Hojo H; Ryan
R J

Department of Biochemistry and Molecular Biology,
Mayo Medical School,
Rochester, Minnesota 55905.
Endocrinology (UNITED STATES) Dec 1990, 127 (6)
p2977-84, ISSN
0013-7227 Journal Code: 0375040
Contract/Grant No.: HD-9140; HD; NICHD
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

3/3,AN/162
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

04980191 PMID: 862556
Combination of ectopic and standard human
glycoprotein *hormone*
alpha with beta subunits: discordance of immunologic and
receptor-binding
activity.

Weintraub B D; Stannard B S; Rosen S W
Endocrinology (UNITED STATES) Jul 1977, 101 (1)
p225-35, ISSN
0013-7227 Journal Code: 0375040
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
? † s3/3,ab/14,22,55,66,72,92,96,99,108, 109,162

3/3,AB/14
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2005 The Dialog Corp. All rts. reserv.

14299421 PMID: 12112597

Comparison of *glycoprotein* *hormone* *alpha*-subunits of laboratory animals.

Suzuki Osamu; Mochida Keiji; Yamamoto Yoshie; Noguchi Yoko; Takano Kaoru;

Matsuda Junichiro; Ogura Astuo

Department of Veterinary Science, National Institute of Infectious

Diseases, Toyama 1-23-1, Shinjuku-ku, Tokyo, Japan.

osuzuki@nih.go.jp

Molecular reproduction and development (United States) Jul 2002, 62

(3) p335-42, ISSN 1040-452X Journal Code: 8903333

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

The common alpha-subunit of glycoprotein hormones (CGalpha) is a core protein shared by follicle-stimulating hormone (FSH), luteinizing hormone (LH), and thyroid-stimulating hormone (TSH). In order to obtain a molecular basis for an efficient superovulation technique applicable to a wide range of animal species and to discuss the phylogenetic aspect based on molecules related to the reproductive system, we determined cDNA sequences of CGalpha in seven laboratory animals: the guinea pig, Mongolian gerbil, golden hamster, mastomys, Japanese field vole, the JF1 strain of *Mus musculus* molossinus, and rabbit. Comparison of the inferred CGalpha amino acid sequences of these animals and other mammals (human, mouse, rat, cow, pig, and sheep) showed that the signal peptides and the first ten residues at the N-terminus of the apoprotein were variable, while the rest of the apoproteins were highly conserved. In particular, all rodents had a leucine residue at the apoprotein N-terminus, except the guinea pig, which had a phenylalanine residue, as in the cow, pig, sheep, and rabbit. Phylogenetic trees constructed from amino acid sequences suggest a closer relationship between the guinea pig and artiodactyls than to rodents, confirming the taxonomic peculiarity of the guinea pig. Copyright 2002 Wiley-Liss, Inc.

3/3,AB/22

7

Medline 7/21/2005

DIALOG(R)File 155:MEDLINE(R)

(c) format only 2005 The Dialog Corp. All rts. reserv.

13565212 PMID: 11148053

Intracellular folding pathway of the cystine knot-containing

glycoprotein *hormone* *alpha*-subunit.

Darling R J; Wilken J A; Ruddon R W; Bedows E

Department of Pharmacology, Eppley Institute for Research in Cancer and

Allied Diseases, University of Nebraska Medical Center, Omaha, Nebraska

68198, USA.

Biochemistry (UNITED STATES) Jan 16 2001, 40

(2) p577-85, ISSN

0006-2960 Journal Code: 0370623

Contract/Grant No.: CA32949; CA; NCI; P30 CA36727; CA; NCI

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Three of the five disulfide bonds in the glycoprotein hormone alpha-subunit (GPH-alpha) form a cystine knot motif that stabilizes a three-loop antiparallel structure. Previously, we described a mutant (alpha(k)) that contained only the three knot disulfide bonds and demonstrated that the cystine knot was necessary and sufficient for efficient GPH-alpha folding and secretion. In this study, we used alpha(k) as a model to study the intracellular GPH-alpha folding pathway. Cystine knot formation proceeded through a 1-disulfide intermediate that contained the 28-82 disulfide bond. Formation of disulfide bond 10-60, then disulfide bond 32-84, followed the formation of 28-82. Whether the two non-cystine knot bonds 7-31 and 59-87 could form independent of the knot was also tested. Disulfide bond 7-31 formed rapidly, whereas 59-87 did not form when all cysteine residues of the cystine knot were converted to alanine, suggesting that 7-31 forms early in the folding pathway and that 59-87 forms during or after cystine knot formation. Finally, loop 2 of GPH-alpha has been shown to be very flexible, suggesting that loop 2 does not actively drive GPH-alpha folding. To test this, we replaced residues 36-55

in the flexible loop 2 with an artificially flexible glycine chain. Consistent with our hypothesis, folding and secretion were unaffected when loop 2 was replaced with the glycine chain. Based on these findings, we describe a model for the intracellular folding pathway of GPH-alpha and discuss how these findings may provide insight into the folding mechanisms of other cystine knot-containing proteins.

3/3,AB/55

DIALOG(R)File 155:MEDLINE(R)

(c) format only 2005 The Dialog Corp. All rts. reserv.

11265738 PMID: 8589549

A synthetic peptide corresponding to *glycoprotein*
hormone *alpha*
subunit residues 32-46 inhibits gonadotropin binding to receptor.

Leng N; Grasso P; Deziel M R; Reichert L E

Albany Medical College, NY, USA.

Peptide research (UNITED STATES) Sep-Oct 1995, 8
(5) p272-7, ISSN

1040-5704 Journal Code: 8913494

Contract/Grant No.: HD-13938; HD; NICHD

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE: Completed

A synthetic peptide strategy was used to study structure-function relationships between residues 32 to 46 of the glycoprotein hormone alpha subunit (GPH alpha) and the testicular follicle-stimulating hormone (FSH) and luteinizing hormone (LH/hCG) receptors. A peptide amide corresponding to this region [GPH-alpha-(32-46)] inhibited both 125I-hFSH and 125I-hCG binding to their respective calf testis membrane receptors. The concentration at which GPH-alpha-(32-46) peptide amide inhibited FSH binding by 50% (IC50) was 36 microM, and for hCG it was 54 microM. GPH-alpha-(32-46) peptide amide also inhibited FSH-stimulated estradiol biosynthesis in cultured rat Sertoli cells. In order to determine the involvement of individual residues within this region of the glycoprotein hormone alpha subunit in receptor binding inhibitory activity, truncated

and alanine-substituted peptide analogs were synthesized and tested in both FSH and hCG radioligand receptor competition assays. Based on the relative potency of each peptide, we conclude that Phe-33, Arg-35, Arg-42, Ser-43 and Lys-44 may be important, and Cys-32 is required, for inhibition of FSH and hCG binding to their respective receptor. Our results demonstrate involvement of the glycoprotein hormone alpha-subunit in receptor binding, identify residues 32 to 46 as a receptor binding domain, and define the relative importance of specific residues within this region of the alpha subunit for hormone-receptor interaction.

3/3,AB/66

DIALOG(R)File 155:MEDLINE(R)

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10645902 PMID: 7518386

Evidence for two folding domains in *glycoprotein*
hormone *alpha*
-subunits.

Bousfield G R; Ward D N

Department of Biological Sciences, Wichita State University, Kansas

67260.

Endocrinology (UNITED STATES) Aug 1994, 135
(2) p624-35, ISSN

0013-7227 Journal Code: 0375040

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE: Completed

We reconstituted ovine (o) LH alpha from its amino- and carboxyl-terminal fragments obtained as follows. oLH alpha was nicked at Arg46-Ser47 with Arg-C protease. Nicked oLH alpha disulfide bonds were broken by sulfitolysis, and its N-terminal peptide and C-terminal glycopeptide were separated by Sephacryl S-200 chromatography. Both fragments were mixed, reduced, and reoxidized. Reoxidation products were chromatographed on Sephacryl S-200, and an alpha-monomer fraction was recovered. The putative nicked alpha-monomer fraction was reassociated with native oLH beta, and the resulting oLH derivative was isolated by S-200 chromatography with a

reduced yield of 11% (intact subunits yield, 67% oLH). This preparation was 2.6% as active as oLH in a LH receptor binding assay. Two additional oLH derivatives were prepared. Cleavage at alpha Arg46-Ser47 alone, followed by reassociation with native oLH beta, produced Arg-C-nicked oLH alpha:oLH beta (14% yield) that was 3.3% as active as native oLH. Reduction-reoxidation of Arg-C-nicked oLH alpha followed by reassociation with oLH beta produced reduced reoxidized-Arg-C-nicked oLH alpha:oLH beta (11% yield) that was 1.8% as active as oLH. These results indicated that the nicked oLH alpha monomer had been reconstituted from its N- and C-terminal fragments.

3/3,AB/72
DIALOG(R)File 155:MEDLINE(R)
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10544536 PMID: 7511092

A region in the human *glycoprotein* *hormone* *alpha*-subunit important in holoprotein formation and receptor binding.
Xia H; Chen F; Puett D
Department of Biochemistry, University of Georgia, Athens 30602.
Endocrinology (UNITED STATES) Apr 1994, 134 (4) p1768-70. ISSN 0013-7227 Journal Code: 0375040
Contract/Grant No.: DK-33973; DK; NIDDK
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Using site-directed mutagenesis of the human glycoprotein hormone alpha-subunit, we have shown that single replacements of Ala36 and Pro38 with Glu and Asp, respectively, result in mutant subunits that do not bind significantly to hCG beta. In contrast, the replacement of Lys44 with Ala did not interfere with hCG beta binding, but the resulting holoprotein failed to exhibit high affinity binding to the LH/CG receptor. These results in conjunction with other data suggest that the region of human alpha between positions 33-45 contains several amino acid residues that

participate in subunit binding and others that function in receptor binding.

3/3,AB/92
DIALOG(R)File 155:MEDLINE(R)
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09705517 PMID: 1372275

Assembly and expression of a synthetic gene encoding the bovine *glycoprotein* *hormone* *alpha*-subunit.
Campbell R K; Erfle H; Barnett R W; Moyle W R
University of Medicine and Dentistry of New Jersey, Robert Wood Johnson (Rutgers) Medical School, Piscataway 08854.
Molecular and cellular endocrinology (NETHERLANDS) Feb 1992, 83 (2-3) p195-200. ISSN 0303-7207 Journal Code: 7500844
Contract/Grant No.: HD14709; HD; NICHD
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
The glycoprotein hormones are a family of alpha beta heterodimeric proteins which are responsible for gonadal and thyroid function. In previous studies we employed chimeric glycoprotein hormone beta-subunits to identify amino acid residues critical for binding to receptors and antibodies. To facilitate similar studies of the alpha-subunit of these hormones, we assembled a 406 bp synthetic gene which encodes the human alpha-subunit leader sequence and the secreted portion of the bovine alpha-subunit. It contains unique restriction sites that can be used for cassette mutagenesis or for making human/bovine alpha-subunit chimeras. The gene was assembled from eight long oligodeoxynucleotides in a single ligation and its structure verified by DNA sequencing. Co-transfection of COS-7 cells with the synthetic gene and the cDNA for human chorionic gonadotropin (hCG) beta-subunit resulted in the secretion of a functional alpha beta heterodimer which bound to luteinizing hormone receptors. The protein was recognized by several monoclonal antibodies including B109, an antibody to a conformational epitope which binds hCG but not the free

bovine alpha-, human alpha-, or hCG beta-subunits. This suggests that the binding site for B109 may be formed by residues located primarily within the hCG beta-subunit and that formation of this epitope requires a change in conformation of the beta-subunit when it combines with the alpha-subunit.

3/3,AB/96

DIALOG(R)File 155:MEDLINE(R)

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09471495 PMID: 1713773

Molecular cloning of the rhesus *glycoprotein*
hormone *alpha*-subunit
gene.

Golos T G; Durning M; Fisher J M

Wisconsin Regional Primate Research Center,
University of Wisconsin,
Madison 53715-1299.

DNA and cell biology (UNITED STATES) Jun 1991, 10
(5) p367-80,

ISSN 1044-5498 Journal Code: 9004522

Contract/Grant No.: R29-HD-24856; HD; NICHD;
RR00167; RR; NCRR

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

A rhesus monkey genomic library was screened with a cDNA for the glycoprotein hormone alpha-subunit. Genomic clones hybridizing with exon-specific probes were selected and the DNA sequences were determined for 1.6 kb of 5'-flanking DNA, all four exons, the second and third introns, all exon-intron junctions, and 357 bp of 3'-flanking DNA.

Comparison with the 236 bp of 5'-flanking sequence data available for the human alpha gene indicates an overall homology of 95%. Primer extension

analysis of rhesus placental and pituitary mRNA demonstrated that transcription initiation is identical to that in the human placenta. The rhesus gene contains an element nearly identical (21/22 bases) to the placental tissue-specific element described for the human alpha gene. The rhesus gene has only one copy of the cAMP-response element (CRE), which is

present as a direct repeat in the human gene. The rhesus CRE contains the consensus core sequence TGACG-TCA with the cytosine in the fourth position that is essential for placental expression of the human gene. The 5'-flanking region also has elements highly homologous to the consensus estrogen and progesterone/glucocorticoid response elements, as well as thyrotrope-specific and Pit-1-like binding sites described in rodent genes.

The nucleotide sequence of four exons (predicted mRNA) have an aggregate homology of 92.7% with the human sequence. However, a 12-bp insertion to the second exon results in the addition of 4 amino acids to the amino-terminal end of the protein; these are homologous with the proteins of nonprimates but are lacking in the human alpha-subunit. The amino acid sequence of the deduced protein was slightly more homologous with the bovine than the human protein (91.6% vs. 89.6%). Thus, the rhesus glycoprotein alpha-subunit gene codes for a protein whose structure somewhat more closely resembles that of lower species, but the 5'-flanking DNA of the gene has gained the elements necessary for transcription in the placental syncytiotrophoblast which distinguishes the primate placenta from the other species examined.

3/3,AB/99

DIALOG(R)File 155:MEDLINE(R)

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09404044 PMID: 2036968

The antigenic structure of the human *glycoprotein*
hormone *alpha*
-subunit: III. Solution- and solid-phase mapping using synthetic peptides.

Charlesworth M C; Bergert E R; Morris J C; McCormick D J; Ryan R J

Department of Biochemistry, Mayo Medical School,
Rochester, Minnesota
55905.

Endocrinology (UNITED STATES) Jun 1991, 128 (6)
p2907-15, ISSN

0013-7227 Journal Code: 0375040

Contract/Grant No.: HD-9140; HD; NICHD

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Twenty-seven synthetic peptides, representing the entire structure of the human glycoprotein hormone alpha-subunit were used to map the antigenic structure of the alpha-subunit. Solution phase and solid phase assays were performed with these peptides and a panel of eight monoclonal antibodies (MAb). Two dominant regions were localized between residues 22-37 and 70-87. All eight antibodies recognized these regions, but differed somewhat with respect to whether they saw the more N-terminal, middle, or C-terminal portions of these regions. The sequence of residues 13-22 was recognized by three MAbs. The C-terminal region from residues 84-92 was recognized by three MAbs. All MAbs recognized conformational epitopes in that they reacted with two or more regions. Three MAbs (two against free alpha and one against human CG) have linear amino acid sequences as part of their conformational epitope.

3/3,AB/108

DIALOG(R)File 155:MEDLINE(R)

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09180713 PMID: 1701134

The antigenic structure of the human *glycoprotein*
hormone *alpha*
-subunit: II. Cross-species comparisons.

Bergert E R; Madden B; McCormick D J; Papkoff H; Ryan R J

Department of Biochemistry and Molecular Biology,
Mayo Medical School,
Rochester, Minnesota 55905.

Endocrinology (UNITED STATES) Dec 1990, 127
(6) p2985-9, ISSN

0013-7227 Journal Code: 0375040

Contract/Grant No.: HD-05722; HD; NICHD; HD-9140;
HD; NICHD

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Eight monoclonal antibodies, specific for the glycoprotein hormone alpha-subunit, were raised against human free alpha-subunit, human FSH, or human CG. All of these antihuman monoclonal antibodies were tested for

cross-reactivity with alpha-subunits derived from bovine, porcine, equine, bull frog, sea turtle, turkey, and ostrich glycoprotein hormones. All showed cross-reactivity with affinities ranging from 10^{-4} to 10^{-8} depending upon the antibody and the species of alpha-subunit. Cyanogen bromide fragments of bovine and equine alpha, when tested with selected antibodies indicated that antigenic determinants could be localized in two regions: alpha 9-33 and alpha 76-92. Comparison of amino acid sequences, and relative potencies, suggest that major antigenic determinants involve residues 21, 22, and 23 (F-F-S in human alpha) and 76-85 (G-G-F-K-V-E-N-H-T-A in human alpha). As part of this study the N-terminal amino acid sequences of bull frog, sea turtle, turkey, and ostrich alpha-subunits were determined and reported for the first time.

3/3,AB/109

DIALOG(R)File 155:MEDLINE(R)

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09180712 PMID: 1701133

The antigenic structure of the human *glycoprotein*
hormone *alpha*
-subunit. I. Characterization of anti-alpha monoclonal antibodies.

Charlesworth M C; McCormick D J; Bergert E R;
Vutyavanich T; Hojo H; Ryan R J

Department of Biochemistry and Molecular Biology,
Mayo Medical School,
Rochester, Minnesota 55905.

Endocrinology (UNITED STATES) Dec 1990, 127 (6)
p2977-84, ISSN

0013-7227 Journal Code: 0375040

Contract/Grant No.: HD-9140; HD; NICHD

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

The glycoprotein hormones CG, LH, FSH, and TSH are composed of two noncovalently linked subunits, alpha and beta. The beta-subunit confers hormone specificity, while the alpha-subunit is homologous within a species. To help in determining the antigenic structure of the common

alpha-subunit, six monoclonal antibodies (mAbs) to the free or heterodimeric alpha-subunit of human (h) gonadotropic hormones have been prepared and, along with two previously isolated mAbs, have been characterized for binding specificity to alpha- and beta-subunits and the human glycoprotein hormones, CG, LH, FSH, and TSH. Each mAb was derived from hybridomas of FO myeloma cells fused with spleen cells from mice immunized with free alpha-subunit, hCG or hFSH. mAbs A101, A102, and E512 were specific for the alpha-subunit but showed the highest affinity for the intact hormone; K2.18, K94.6, E501, E502, and E511 were specific for free alpha. All of the antibodies inhibited binding of 125I-hCG to luteal membrane receptor, and 125I-labeled mAbs did not recognize hCG/receptor complex. Characterization by two-site binding assays using alpha, hCG, or hFSH as antigen revealed that all the mAbs bind to unique sites on alpha which may be overlapping, and which are modified in the intact hormone. The antigenic sites for mAbs E502, E511, and K2.18 are at least partially linear because they bind to reduced, carboxymethylated alpha.

3/3,AB/162
DIALOG(R)File 155:MEDLINE(R)
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04980191 PMID: 862556

Combination of ectopic and standard human
glycoprotein *hormone*
alpha with beta subunits: discordance of immunologic and receptor-binding activity.

Weintraub B D; Stannard B S; Rosen S W
Endocrinology (UNITED STATES) Jul 1977, 101 (1)
p225-35, ISSN
0013-7227 Journal Code: 0375040
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE: Completed

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S3 163 (GLYCOPROTEIN()HORMONE OR GONADOTROP?IN)()ALPHA/TI

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